

R E M A R K S

The Examiner is respectfully requested to acknowledge applicants' claim for priority under 35 USC 119 and receipt of the certified copies of the priority documents that were filed in parent application Serial No. 09/675,330 (now USP 6,426,122) on September 28, 2000.

The specification was amended to update the status of the parent application Serial No. 09/675,330, which is now USP 6,426,122.

Claim 9 was amended by inclusion of features of claims 10, 16, 23 and 30. Claim 9 was also amended to recite that the plating tank has a "first side wall", a "second side wall" and a "bottom wall". These walls are shown in the enclosed copy of Figs. 1(a) and 1(b).

Editorial revisions were made in claims 13, 14, 16, 26, 35, 36 and 37.

Claim 14 was amended to be consistent with the amendments to claim 9. The amendments to claim 14 are supported by Fig. 1(b) and the disclosure on pages 32 and 33 of the specification.

Claim 16 was amended to be consistent with the amendments to claim 9.

Applicants are pleased to note that claims 26 and 35 to 38 were allowed.

Claims 9, 10, 13, 14, 17, 23, 25, 30 and 45 were rejected under 35 USC 103 as being unpatentable over Gunji et al. USP 4,275,098 for the reasons set forth in the paragraph bridging pages 2 and 3 of the Office Action.

Claims 15, 25, 32 and 50 were rejected under 35 USC 103 as being unpatentable over Gunji et al. in view of JP 4-154948 for the reasons set forth in the paragraph bridging pages 3 and 4 of the Office Action.

It was admitted in the Office Action that Gunji et al. fail to teach the capacity of the dross removing zone/tank relative to the plating zone/tank.

It was further admitted in the Office Action that Gunji et al. fail to teach the distance between the strip and the walls of the plating tank and the distance between the sink roll and the walls of the plating tank.

Claims 24, 31, 41, 42 and 44 to 46 were rejected under 35 USC 103 as being unpatentable over Gunji et al. in view of Knupfer USP 5,354,970 for the reasons set forth in the paragraph bridging pages 4 and 5 of the Office Action.

It was admitted in the Office Action that Gunji et al. fail to teach the molten zinc tank includes a heating means, especially a coreless induction heating means.

This rejection is moot in view of the present claims.

Claim 43 was rejected under 35 USC 103 as being unpatentable over Gunji et al. in view of Knupfer and JP 4-154948 for the reasons set forth in the first full paragraph on page 6 of the Office Action.

It was admitted in the Office Action that Gunji et al. fail to teach the distance between the steel strip which is supported by the sink roll in the vessel and the inside wall of the vessel is 200 to 500 nm.

This rejection is moot in view of the present claims.

Claim 12 was rejected under 35 USC 103 as being unpatentable over Gunji et al. in view of Knupfer and Flores USP 5,989,645 for the reasons set forth in the third paragraph on page 6 of the Office Action.

It was admitted in the Office Action that Gunji et al. fail to teach that the heating manner for the dross removing tank is a dissolving means in the dross removing tank.

Claim 11 was rejected under 35 USC 103 as being unpatentable over Gunji et al. in view of JP 11-12707 for the reasons set

forth in the paragraph bridging pages 6 and 7 of the Office Action.

It was admitted in the Office Action that Gunji et al. fail to teach that the transfer means is a pump which has an opening to suck molten metal which is positioned at the bottom of the plating tank.

Gunji et al. USP 4,275,098 disclose the following in column 9, lines 11 to 17:

"The hot-dip galvanizing tank 7 is divided by a vertical partition 12 into a plating chamber 10 and a reaction chamber 11. The bottom wall 10' of the plating chamber 10 inclines downwardly toward the reaction chamber 11 and is connected to the horizontal wall 11' of the reaction chamber 11, which is lower than the bottom wall 10."

As is clearly recognized from the above disclosure in column 9 of Gunji et al. and by Figs. 4 and 5 of Gunji et al., the reaction chamber 11 is arranged next to the plating chamber 10.

The structure of the plating vessel according to claim 9 of the present invention is substantially different from that of Gunji et al. USP 4,275,098.

According to the present claim 9, the plating vessel is divided into a plating tank and a dross removing tank by a first

side wall, a bottom wall and a second side wall. That is, the plating vessel is divided into the plating tank at an upper zone and the dross removing tank at a lower zone thereof (see Figs. 1(a) and Fig. 1(b) enclosed herewith).

Consequently, the apparatus is simplified, the operation is stabilized, the investment cost is reduced, and the space occupied by the apparatus is reduced.

Furthermore, in the presently claimed invention, the plating tank is located at an upper portion of the plating vessel, so that low temperature zones which appear at near the refractory of the plating vessel are not generated in the plating tank, which reduces the generation of bottom dross (see page 42, lines 12 to 16 of the present specification).

In contrast to the presently claimed invention, in Gunji et al. USP 4,275,098, lower temperature zones appear at near the refractory of the plating vessel, resulting in the generation of bottom dross.

According to the presently claimed invention, the melt containing dross in the plating tank is transferred to the dross removing tank using a mechanical pump. Therefore, no problems concerning quality and operation occur (i.e., in the present invention, the generation of fumes and top dross are avoided).

In addition, the use of a mechanical pump avoids any unstable transfer of the melt utilizing the flow accompanied with the traveling steel strip, and assures the transfer of melt from a portion of high concentration of dross to the dross removing tank at a necessary flow rate. Further, agitation does not occur in the dross removing tank, so that the flow is calm, which enhances the sedimentation of the dross.

In contrast to the presently claimed invention, Gunji et al. USP 4,275,098 utilizes the stirring effect of a stirrer. Bottom dross floats up onto the surface of the melt in the reaction chamber (see Gunji et al. column 9, line 60 to column 10, line 3). Therefore, the dross removing tank of applicants' claim 9 is substantially different from the reaction chamber of Gunji et al. USP 4,275,098.

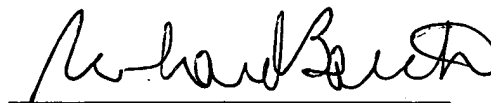
It is therefore respectfully submitted that applicants' claimed invention is not rendered obvious over the references, either singly or combined in the manner relied upon in the Office Action, in view of the distinctions discussed hereinabove. It is furthermore submitted that there are no teachings in the references to combine them in the manner relied upon in the Office Action.

Reconsideration is requested. Allowance is solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

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Respectfully submitted,



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Encs.: (1) PETITION FOR EXTENSION OF TIME  
(2) Copy of Fig. 1(a) and Fig. 1(b) (one sheet)